

ABSTRACT

142

143

144

145

146

147

148

149

150

151

152

153

An integrated system for commercial production of a heterologous protein in transgenic plants under conditions of controlled environment agriculture (CEA) is provided. CEA comprises growth of plants under defined environmental conditions, preferably in a greenhouse, to optimize growth of the transgenic plant as well as expression of the gene encoding the heterologous protein. The transgenic plants used in the present invention are transformed with an expression vector comprising a CEA promoter operably linked to a gene encoding the heterologous protein of interest, wherein the CEA promoter is selected to maximize heterologous protein production under the defined environmental conditions of CEA.